

REMARKS/ARGUMENTS

This is responsive to the Official Action mailed December 23, 2008. Reconsideration is respectfully requested.

Pending Claims

Claims 1-13 are pending. Claims 1-13 are rejected. Applicants cancel claim 12 and amend claims 1-11 and 13. New claims 14-22 are submitted for consideration; claims 14-22 are based on original method claims 2-10. It is submitted that no new matter is added due to the amendments of claims 1-11 and 13 and by new claims 14-22.

Support for Proposed Amendments

Claim No.	Amendment	Support
1	"spatially sparse stimuli"	See paragraphs [0001], [0014], [0015], ..., [0025], [0026], etc. See Figs. 10-12, amongst others.
1	"using a stimulator"	Original wording of claim 11.
1	"using a processor"	Original wording of claim 11.
1	"using a monitor"	Original wording of claim 11.
2	Minor grammatical amendments	
3	Minor grammatical amendments	
4	"spatially sparse stimuli"	See paragraphs [0001], [0014], [0015], ..., [0025], [0026], etc. See Figs. 10-12, amongst others.
	Minor grammatical amendments	
5	Minor grammatical amendments	
6	"spatially sparse stimuli"	See paragraphs [0001], [0014], [0015], ..., [0025], [0026], etc. See Figs. 10-12, amongst others.
	Minor grammatical amendments	
7	Replace "or" with "and" and insert "selected from the group consisting of"	
	Minor grammatical amendments	

Claim No.	Amendment	Support
8	“spatially sparse stimuli” Minor grammatical amendments Replace “such as” with “including”. Delete “or” (twice) and insert “and”.	See paragraphs [0001], [0014], [0015], ..., [0025], [0026], etc. See Figs. 10-12, amongst others.
9	“spatially sparse stimuli” Minor grammatical amendments	See paragraphs [0001], [0014], [0015], ..., [0025], [0026], etc. See Figs. 10-12, amongst others.
10	Minor grammatical amendments	
11	Replace “Apparatus” with “An apparatus” Minor grammatical amendments “spatially sparse stimuli” Replace “that varies” after “processor” with “adapted to.”	See paragraphs [0001], [0014], [0015], ..., [0025], [0026], etc. See Figs. 10-12, amongst others.
12	Cancelled	
13	“spatially sparse stimuli” Minor grammatical amendments	See paragraphs [0001], [0014], [0015], ..., [0025], [0026], etc. See Figs. 10-12, amongst others.
14-22	New claims	Original claims 2-10, respectively.

Paragraphs 1 & 2

Applicants note paragraphs 1 and 2 of the Office Action. No action is required.

Paragraphs 3 & 4

Claim 12 is rejected under 35 USC 112, second paragraph. Claim 12 is cancelled in this response.

Paragraphs 6-8

Method claims 1-10 are rejected under 35 USC 101 as being directed to non-statutory subject matter.

Independent claim 1 has been amended to recite using a stimulator, a processor and a monitor. These limitations are found in independent apparatus claim 1. It is submitted that no new subject matter is added by these amendments. As amended, claim 1 does relate to the use of an apparatus and hence are accordingly allowable.

Paragraphs 9-11

Claims 1-13 are rejected as being anticipated under 35 USC 102(b) by Maddess et al. (US 2003/0163060).

Claim 1 has been amended to recite that the stimuli are spatially sparse.

Maddess et al. is directed to and describes "temporally sparse stimuli", not "spatially sparse stimuli". This reference teaches that all spatial arrangements are equally preferred. In contrast, the present application teaches that the spatial layout of various stimulus types need to be constrained to be optimal, and examples are given for spatial constraints for each stimulus modality: visual (Figs. 3 and 10); auditory (Figs. 11 and 12); and tactile (Fig. 13). A counter example of a non-spatially sparse visual stimulus is given in Fig. 4 of the instant patent application. In teaching that all spatial arrangements are equally preferred, Maddess et al. teaches the opposite of the present application.

The present application demonstrates that stimuli with the same temporal sparseness (advocated as all being optimal in Maddess et al.) can have markedly different performance depending on their degree of spatial sparseness. The present application introduces the additional property of spatial sparseness by constraining that spatially adjacent regions should not be stimulated near each other in time. The effectiveness of spatially sparse stimuli to provided improved signal to noise ratios over stimuli presented at the same temporal rates is demonstrated in Figs. 8 and 9. This is demonstrated at two temporally spares conditions, 4.2

and 9.4 presentations per second. Therefore stimuli whose temporal sparsenesses are identical can provide very different results when spatial constraints are imposed. This is never mentioned anywhere in Maddess et al.

It is submitted that amended claim 1 is not anticipated or suggested by the cited reference and therefore is in condition for allowance.

Paragraphs 12-20

It is submitted that claims 2-10 depend from an allowable base claim and hence are in condition for allowance.

Paragraph 21

Claim 11 has been amended to recite that the stimuli are spatially sparse. For the reasons set forth in respect of claim 1, it is submitted that amended claim 11 is not anticipated or suggested by the cited reference and therefore is in condition for allowance.

Paragraphs 22

Claim 12 is cancelled.

Paragraphs 23

It is submitted that claim 13 depends from an allowable base claim and hence is in condition for allowance.

Application No. 10/581,003
Amendment dated March 23, 2009
Office Action dated December 23, 2008

The Commissioner is hereby authorized to charge any additional fees which may be required in connection with this submission to Deposit Account No. 23-0785.

Respectfully submitted,

By 
Stephen D. Geimer, Reg. No. 28,846

WOOD, PHILLIPS, KATZ, CLARK & MORTIMER
500 West Madison Street, Suite 3800
Chicago, Illinois 60661
(312) 876-1800 (phone)

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I hereby certify that this paper is being deposited with the United States Postal Service with sufficient postage at First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on **March 23, 2009**.

